conducting development and fixing. The holograms maintained a stable image for a long period of three months or more, after peeling the glass plate. The records were formed with the refractive index modulation, but not unevenness on the recording layer, and transparent holograms having substantially no absorption in the visible region were obtained.

On the other hand, all the holograms obtained in Comparative Examples exhibited only a diffraction efficiency of less than 10%.

Evaluation of performance

The diffraction efficiency of each transmission type hologram obtained in the above-mentioned Examples 45-71 and Comparative Examples 1-5 was calculated by determining a ratio of diffracted light to incident light with a light power meter (OPTICAL POWER/ENERGYMETER, MODEL 66XLA produced by PHOTODYNE Co., Ltd.) by the following equation.

Diffraction efficiency (%) = (diffracted light intensity／incident light intensity) × 100

The diffraction efficiency of the reflection type hologram was determined by measuring transmittance with an ultraviolet spectrophotometer ("V-550" produced by Nippon Spectroscopy Co., Ltd.).

The obtained results in the above-mentioned Examples 45-71 and Comparative Examples 1-5 are shown by Tables 4 to 6.

Table 4

	Example																
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
Allyl-based prepolymer (A)																	
DAPA	5	5	5	3	7.5			5	5	5	5	5	5	5	5	5	5
DAIP						5											
TAIC							5										
Radical polymerizable compound (b1)																	
ASF400	1	3	4	5	1.5			0.5	3							0.5	0.5
BPEFA						2.5	2.5										
MPSMA										2				2		0.5	0.5
BR-30											2				2	0.5	0.5
SR-804												2				0.5	
NVC													2			0.5	
Radical polymerizable compound (b2)																	
DBVP								3	0.5					1.5	1.5		1.5
Nonreactive viscosity reducing agent (e1)																	
SDE	4	2	1	2	1	2.5	2.5	1.5	1.5	3	3	3	3	1.5	1.5	2.5	2
Polymerization initiator																	
BTTB-25	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Dye																	
NK4795	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Solvent																	
Acetone	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Diffraction efficiency (%) transmission type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Diffraction efficiency (%) reflection type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

× : less than 10% ○ : 30% or more

Table 5

	Example									
	62	63	64	65	66	67	68	69	70	71
Allyl-based prepolymer (A)										
DAPA	5	5	5	5	5	5	5	5	5	5
Radical polymerizable compound (b1)										
ASF400	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Radical polymerizable compound (b2)										
DBVP										
Nonreactive viscosity reducing agent (e1)										
ADE	2.5									
ADB		2.5								
SDB			2.5							
PDM				2.5						
PDB					2.5					
PDO						2.5				
(Meth)allyl-based viscosity reducing agent (e2)										
DAPM							2.5			
DAIM								2.5		
DATM									2.5	
ADA										2.5
Polymerization initiator										
BTTB-25	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Dye										
NK4795	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Solvent										
Acetone	6	6	6	6	6	6	6	6	6	6
Diffraction efficiency (%) transmission type	○	○	○	○	○	○	○	○	○	○
Diffraction efficiency (%) reflection type	○	○	○	○	○	○	○	○	○	○

× : less than 10% ○ : 30% or more